REMARKS

Claims 1-3, 7, 8, 13, 15, 17, 18, 20-23, 25, 26 and 29 are currently pending in the subject application and are presently under consideration.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-3, 7, 8, 13, 15, 17, 18, 20-23, 25, 26 and 29 Under 35 U.S.C. §103(a)

Claims 1-3, 7, 8, 13, 15, 17, 18, 20-23, 25, 26 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shattil (US 7,593,449) and Yoshida *et al*. (US 5,734,647). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Shattil and Yoshida *et al*., alone or in combination, do not disclose each and every feature of the subject claims.

> A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *KSR v. Teleflex*, 550 U.S. ___, 127 S. Ct. 1727 (2007) citing Graham v. John Deere Co. of Kansas City, 383 U. S. 1, 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (*quoting Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co*., 332 F. 2d 406, 412 (CA6 1964))).

Independent claim 1 recites, in part, *generating **first data to be <u>transmitted from a first transmission terminal</u>**;*

***encoding the first data with a long code at the first transmission terminal** to produce a first long-encoded signal;*

applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal; and

transmitting the first long-encoded, polarized signal from the first transmission terminal to at least one destination,

wherein the ***encoding the first data with the long code at the first transmission terminal comprises utilizing*** ***an identical long code also employed by a second transmission terminal*** ***transmitting signals*** ***having an opposite polarization to the first polarization***.

The Office Action dated July 11, 2011 concedes that Shattil does not disclose all of the elements of claim 1 and cites Yoshida *et al.* to make up for the deficiencies of Shattil. In particular, the Office Action asserts that "Yoshida is relied upon to disclose encoding first data and second data with the same long code … The elongated spreading code is input for both the I and Q signals."

We first note that Shattil provides transmission protocols based upon carrier interferometry (CI) to reduce multi-path interference. CI is a class of multicarrier processing techniques that use sets of phase shifts to overlay and separate data streams. (*See* col. 4, lines 34-42). While Shattil discloses that users can share same carriers and phase spaces, the codes associated with each user are different. (*See* col. 36, lines 48-54). For instance, Shattil discloses each user including a unique spreading sequence. (*See* col. 38, lines 4-15). Moreover, Shattil discloses that different data streams are encoded onto different CI codes. (*See* col. 76, line 67 to col. 77, line, 1). As such, there is no suggestion in Shattil that would lead one to attempt to deviate from the conventional elongated coding techniques employing different long codes for orthogonal polarized transmissions from differing terminals.

Furthermore, the cited sections of Yoshida *et al.* fail to disclose the elements asserted in the Office Action. The cited sections of Yoshida *et al.* refer to a single m-bit binary digital signal that is to be transmitted from a terminal. The reference is concerned with accommodating an increased number of users in the m-bit binary digital signal as disclosed in the Abstract which state, in part:

> "There is provided a CDMA communication system in which **the number of multiple users can be greatly increased** under fast fading circumstances." (emphasis added)

In particular, Figure 4A shows the system for preparing the m-bit binary digital signal into a transmission signal. As such, Yoshida *et al.* is merely disclosing using a single long code for a single binary digital transmission. Yoshida *et al.* does not suggest any type of relationship related to long codes with respect to transmission from differing terminals. Specifically, column 8, lines 55 to column 9, line 23 states:

> "Referring to FIG. 4A, the transmitting apparatus is composed of a serial - parallel converter 2, an M-ary digital modulator 4, multipliers 6 and 8, transmitting filters 10 and 12, and a quadrature modulator 14 which includes multipliers 16 and 22, a phase shifter 18, and a signal combiner 20. The serial to parallel converter 2 converts **a sequence of binary digital signal 32** from a serial form into a m-bit (m.gtoreq.2 and m is an integer, m=2 for example) parallel form so as to divide into signals of m sequences. The M-ary digital modulator 4 modulates the m-bit binary digital signal into M-value symbols (M=2.sup.m) to produce quadrature signals I and Q of two sequences. **Thereby, the band width of the quadrature signals I and Q is <u>narrowed compared to the band width required when the binary digital signal 32 is transmitted without the narrowing as it is.</u> The multipliers 6 and 8 multiply the quadrature signals I and Q outputted from the M-ary digital modulator 4 by an elongated spreading code to spread the quadrature signals I and Q. The elongated spreading code has a code length longer than the spreading code length used in the transmitting apparatus shown in FIG. 1A in which the binary digital signal is spread without any narrowing. <u>The code length of the elongated spreading code is concerned with the narrowing by the converter 2 and M-ary digital modulator 4 as well as the transmission band width</u>.** The transmitting filters 10 and 12 perform the restriction of band widths to the outputs of the multipliers 6 and 8, respectively. The quadrature modulator 14 modulates a carrier 36 with the outputs of the transmitting filters 10 and 12 to produce a transmission signal 38. More particularly, the carrier 18 is shifted in phase by .pi./2 by the phase shifter 18. The multiplier 16 multiplies the carrier 36 by the output of the transmitting filter 10. The multiplier 22 multiplies the carrier 36 shifted in phase by the phase shifter 18 by the output of the transmitting filter 12. The signal combiner 20 adds the outputs of the multipliers 16 and 22 to produce **the transmission signal**." (emphasis added)

It is clear from this section that Yoshida *et al.* referring to a single transmission signal and is concerned with narrowing the bandwidth of the quadrature signals in order to affect the length of the elongated spreading code. Reading further, column 11, lines 32-40 states:

> "As described above, in the CDMA communication system according to the present invention shown in FIGS. 4A and 4B, a signal to be transmitted is once **converted into a narrow band signal** by the M-ary digital modulator 4 by executing the M-ary modulation (M.gtoreq.2.sup.m or 4, for example and M is an integer) to m-bit information. **Then, the spreading operation is executed. Therefore, the spreading code length can be made m times (m=log.sub.2 M) under the same spreading factor (=W/R), compared to the code length of the spreading code with which the signal is spread without converting into the narrow band signal**." (emphasis added)

The section clearly indicates that Yoshida *et al.* is narrowing the bandwidth in order to allow for increasing the length of the elongated spreading code in order to accommodate an increased number of users in the signal. There is not disclosure or suggestion ***encoding the first data with the long code at the first transmission terminal comprises utilizing <u>an identical long code also employed by a second transmission terminal</u> transmitting signals <u>having an opposite polarization to the first polarization</u>*** as recited in claim 1. Therefore, the combination of Shattil and Yoshida *et al.* do not disclose all elements of claim 1. Moreover, Yoshida *et al.* fails to suggest any benefit for having the same long code employed in signal transmissions from two differing terminals. The Office Action asserts that "it would have been obvious to one skilled in the art at the time of the invention was made to modify Shattil's method by incorporating the teachings of Yoshida, for the purpose of providing a longer code length for reducing signal interference. Firstly, we note that Shattil does not suggest that a longer code length would reduce signal interference. We further note that Yoshida *et al.* employs band width of the quadrature signals in order to increase the length of the long code. Yoshida *et al.* does not suggest that using the same long code increases the length or reduces interference. Yoshida *et al.* suggests the increased length reduces interference, thereby allowing for more users. As such, the rationale provided in the Office Action for combining the references is not suggested in the references and does not result in the elements recited in the claims.

> The mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless **>the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, ___, 82 USPQ2d 1385, 1396 (2007).
>
> A statement that modifications of the prior art to meet the claimed invention would have been "'<u>well within the ordinary skill of the art</u> at the time the claimed invention was made'" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). **"'>[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, **there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness**.'" *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). (emphasis added)

In general, the rationale proffered in the Office Action to combine such teachings is to achieve benefits identified in applicants' specification, to overcome problems associated with conventional methods, etc. Applicants' representative respectfully submits that this is an unacceptable and improper basis for a rejection under 35 U.S.C. §103. In essence, the Examiner is basing the rejection on the assertion that it would have been obvious to do something not suggested in the art because so doing would provide advantages stated in Applicants' specification. This sort of rationale has been condemned by the CAFC; *see, e.g.*, *Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987). As such, the references, in combination, fail to disclose all elements of claim 1 and there is no motivation to combine the references in the manner indicated in the Office Action without using the subject application as a guide.

Similarly, independent claim 15 recites, in part, "*...encoding first data with a long code to produce a first long-encoded signal...wherein* ***the encoding the first data with the long code comprises utilizing an identical long code employed by a disparate computing device to transmit, with an opposite polarization from the first polarization, second data***." Independent claim 18 recites, in part, "*...a long code generator configured to generate a long code,* ***wherein the long code generated is identical to a second long code employed by a disparate transmission terminal transmitting signals having opposite polarization to a polarization utilized by the transmission terminal...***" Further, independent claim 21 recites, in part, "*...means for encoding* ***first data, generated at a first transmission terminal,*** *with a long code to produce a first long-encoded signal...wherein the means for* ***encoding the first data further comprises means for utilizing an identical long code to that employed by a second transmission terminal configured to transmit signals having an opposite polarization to the first polarization***." For the reasons stated above, Shattil in view of Yoshida *et al.* also fail to teach or suggest such aspects as similarly recited in independent claims 15, 18, and 21.

Independent claim 8 recites *a method, comprising: receiving a signal, via an antenna; dividing the signal received into a first signal,* ***transmitted from a first transmission terminal, and a second signal, transmitted from a second transmission terminal****, wherein* ***the first signal and the second signal have opposite polarizations with respect to one another; applying an identical long code to the first signal and the second signal to generate a first decoded signal and a second decoded signal, respectively****; applying a first orthogonal code to the first decoded*

signal to produce a first output signal corresponding to the first signal transmitted from the first transmission terminal; and applying a second orthogonal code to the second decoded signal to produce a second output signal corresponding to the second signal transmitted from the second transmission terminal." Similarly, independent claim 17 recites, in part, "*…dividing the signal received into* ***a first signal, which is transmitted from a first transmission terminal, and a second signal, which is transmitted from a second transmission terminal, wherein the first signal and the second signal have opposite polarizations with respect to one another; applying an identical long code to the first signal and the second signal to generate a first decoded signal and a second decoded signal, respectively...*** " Further, independent claim 20 recites "*an antenna configured to receive* ***a signal that includes a first signal transmitted from a first transmission terminal and a second signal transmitted from a second transmission terminal, wherein the first signal and the second signal have opposite polarizations with respect to one another…*** *a first mixer configured to* ***apply a long code to the first signal to produce a first decoded signal; a second mixer configured to apply the long code, identical to the long code applied by the first mixer, to the second signal to produce a second decoded signal...*** " and independent claim 26 recites, in part, "*means for separating the signal received into* ***a first signal, which is transmitted by a first terminal, and a second signal, which is transmitted by a second terminal, wherein the first signal and the second terminal have opposite polarizations with respect to one another…*** *means for* ***applying an identical long code to the first signal and the second signal to produce a first decoded signal and a second decoded signal, respectively…*** "

As discussed above and conceded in the Office Action, Shattil fails to teach or suggest applying an identical long code on two separate signals having opposite polarizations and transmitted by disparate terminals. Moreover, as noted *supra*, Yoshida likewise fails to make up for the deficiencies of Shattil. Yoshida, in contrast, discloses employing the same spreading code on constituent parts (e.g., in-phase and quadrature parts) of a single signal, but fails to teach or suggest applying an identical long code on two different signals transmitted from two different terminals. Accordingly, it is clear that the combination of Shattil and Yoshida *et al.* also fail to disclose or suggest all elements of independent claims 8, 17, 20, and 26 related to receiving transmitted signals as recited in independent claims 1, 15, 18, and 21.

In view of at least the foregoing, it is respectfully submitted that Shattil and Yoshida, alone or in combination, do not teach or suggest all elements as recited in independent claims 1, 8, 15, 17, 18, 20, 21, and 26 (and dependent claims 2, 3, 7, 13, 22, 23, 25, and 29 that respectively depend therefrom). Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP825US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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